Part 1

Exponential Modeling

EM1.tex

Exercise 1 *Simplify:* $(2x^2)^2(3y^3)^3 = \boxed{108}x^{\boxed{4}}y^{\boxed{9}}$.

EM2.tex

Exercise 2 *Simplify and give your answer as a fraction:*

$$\left(\frac{r}{s^2}\right)^3\left(\frac{s^5}{r^6}\right)^2 = \frac{\boxed{s^4}}{\boxed{r^9}}.$$

EM3.tex

Exercise 3 *Simplify:* $(ab)^2(a^2b^{-1})^3(a^2b^{-1})^{-1} = a^{\boxed{6}}b^{\boxed{0}}$.

EM4.tex

Exercise 4 *Simplify:* $\dfrac{t^{r+s}-t^r}{t^r} = t^{\boxed{s}} - t^{\boxed{0}}$.

EM5.tex

Exercise 5 *Simplify and give your answer as a fraction:*

$$\left(\frac{p^7}{q^8}\right)^2\left(\frac{q^2}{p^{-3}}\right)^5 = \frac{\boxed{p^{29}}}{\boxed{q^6}}.$$

EM6.tex

Exercise 6 *Simplify and express your answer without using fractions (use negative exponents if needed):*

$$\left(\frac{m^2}{n^6}\right)^2\left(\frac{n^4}{m^3}\right)^5 = m^{\boxed{-11}}n^{\boxed{8}}$$

EM7.tex

Exercise 7 *Simplify:* $(6r^4)^3\left(\frac{y^3}{2}\right)^3 = \boxed{27}r^{\boxed{12}}y^{\boxed{9}}$

EM8.tex

Exercise 8

(a) *Simplify and factor:* $\frac{x^{r+4}-x^{r+2}}{x^{r+1}} = x^{\boxed{3}} - x^{\boxed{1}}$.

(b) *What is the correct factorization of the result found in the previous item?*

Multiple Choice:

(i) $x^2(x-1)$
(ii) $x(x-1)(x-2)$
(iii) $x(x-1)(x+1)$ ✓
(iv) $(x-1)^3$

EM9.tex

Exercise 9 *Simplify:* $(2x^2)^2(3y^3)^3 = \boxed{108}x^{\boxed{4}}y^{\boxed{9}}$

EM10.tex

Exercise 10 *Simplify:* $(2x^2)^2(3y^3)^3 = \boxed{108}x^{\boxed{4}}y^{\boxed{9}}$

EM11.tex

Exercise 11 *Simplify:* $(2x^2)^2(3y^3)^3 = \boxed{108}x^{\boxed{4}}y^{\boxed{9}}$

EM12.tex

Exercise 12 *Simplify:* $(2x^2)^2(3y^3)^3 = \boxed{108}x^{\boxed{4}}y^{\boxed{9}}$

`EM13.tex`

Exercise 13 *Simplify:* $(2x^2)^2(3y^3)^3 = \boxed{108}x^{\boxed{4}}y^{\boxed{9}}$

`EM14.tex`

Exercise 14 *Simplify:* $(2x^2)^2(3y^3)^3 = \boxed{108}x^{\boxed{4}}y^{\boxed{9}}$

`EM15.tex`

Exercise 15 *Simplify:* $(2x^2)^2(3y^3)^3 = \boxed{108}x^{\boxed{4}}y^{\boxed{9}}$

`EM16.tex`

Exercise 16 *Simplify:* $(2x^2)^2(3y^3)^3 = \boxed{108}x^{\boxed{4}}y^{\boxed{9}}$
